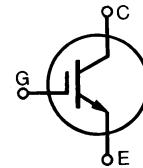


IGBT

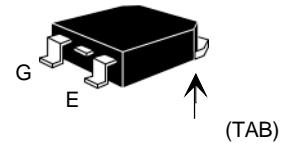
Lightspeed Series

IXGH 15N120C
IXGT 15N120C
 $V_{CES} = 1200 \text{ V}$
 $I_{C25} = 30 \text{ A}$
 $V_{CE(sat)} = 3.8 \text{ V}$
 $t_{fi(\text{typ})} = 115 \text{ ns}$


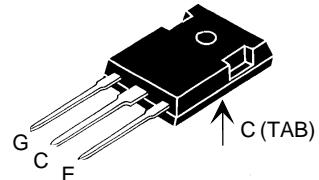
Preliminary data

Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C}$ to 150°C	1200	V
V_{GCR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GE} = 1 \text{ M}\Omega$	1200	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_c = 25^\circ\text{C}$	30	A
I_{C90}	$T_c = 90^\circ\text{C}$	15	A
I_{CM}	$T_c = 25^\circ\text{C}$, 1 ms	60	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}$, $T_{VJ} = 125^\circ\text{C}$, $R_G = 10 \Omega$ Clamped inductive load	$I_{CM} = 40$ @ $0.8 V_{CES}$	A
P_c	$T_c = 25^\circ\text{C}$	150	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +150	$^\circ\text{C}$
Maximum Lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	$^\circ\text{C}$
Maximum Tab temperature for soldering SMD devices for 10 s		260	$^\circ\text{C}$
M_d	Mounting torque (M3)	1.13/10 Nm/lb.in.	
Weight		TO-247 AD	6 g
		TO-268	4 g

TO-268 (IXGT)



TO-247 AD (IXGH)



G = Gate,
E = Emitter,
C = Collector,
TAB = Collector

Features

- International standard packages
JEDEC TO-268 surface and
JEDEC TO-247 AD
- Low switching losses
- MOS Gate turn-on
 - drive simplicity

Applications

- AC motor speed control
- DC servo and robot drives
- DC choppers
- Uninterruptible power supplies (UPS)
- Switched-mode and resonant-mode power supplies

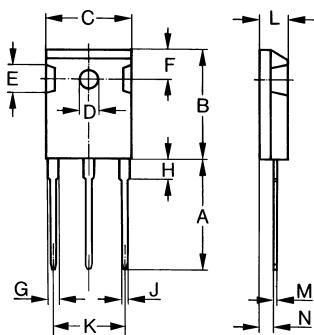
Advantages

- High power density
- Suitable for surface mounting
- Easy to mount with 1 screw,
(mounting screw hole)

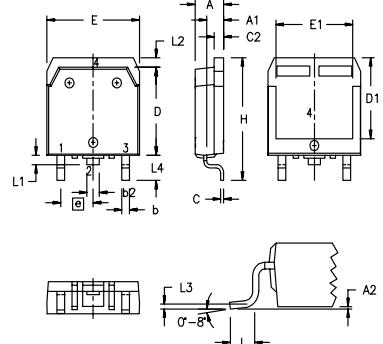
Symbol	Test Conditions	Characteristic Values		
		($T_J = 25^\circ\text{C}$, unless otherwise specified)	min.	typ.
BV_{CES}	$I_C = 250 \mu\text{A}$, $V_{GE} = 0 \text{ V}$	1200		V
$V_{GE(th)}$	$I_C = 250 \mu\text{A}$, $V_{CE} = V_{GE}$	2.5	5	V
I_{CES}	$V_{CE} = V_{CES}$ $V_{GE} = 0 \text{ V}$	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	100 3.5	μA mA
I_{GES}	$V_{CE} = 0 \text{ V}$, $V_{GE} = \pm 20 \text{ V}$		± 100	nA
$V_{CE(sat)}$	$I_C = I_{C90}$, $V_{GE} = 15 \text{ V}$	$T_J = 125^\circ\text{C}$	3.0	3.8 V V

Symbol	Test Conditions	Characteristic Values		
		($T_J = 25^\circ\text{C}$, unless otherwise specified)	min.	typ.
g_{fs}	$I_C = I_{C90}$; $V_{CE} = 10 \text{ V}$, Pulse test, $t \leq 300 \mu\text{s}$, duty cycle $\leq 2\%$	12	15	S
C_{ies} C_{oes} C_{res}	$V_{CE} = 25 \text{ V}$, $V_{GE} = 0 \text{ V}$, $f = 1 \text{ MHz}$	1720	pF	
		95	pF	
		35	pF	
Q_g Q_{ge} Q_{gc}	$I_C = I_{C90}$, $V_{GE} = 15 \text{ V}$, $V_{CE} = 0.5 V_{CES}$	69	nC	
		13	nC	
		26	nC	
$t_{d(on)}$ t_{ri} $t_{d(off)}$ t_{fi} E_{off}	Inductive load, $T_J = 25^\circ\text{C}$ $I_C = I_{C90}$, $V_{GE} = 15 \text{ V}$ $V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 10 \Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 \cdot V_{CES}$, higher T_J or increased R_G	25	ns	
		15	ns	
		150	200	ns
		115	190	ns
		1.05	1.6	mJ
		25	ns	
$t_{d(on)}$ t_{ri} E_{on} $t_{d(off)}$ t_{fi} E_{off}	Inductive load, $T_J = 125^\circ\text{C}$ $I_C = I_{C90}$, $V_{GE} = 15 \text{ V}$ $V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 10 \Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 \cdot V_{CES}$, higher T_J or increased R_G	18	ns	
		0.60	mJ	
		220	ns	
		250	ns	
		2.1	mJ	
		0.25	0.83 K/W	K/W
R_{thJC}	(TO-247)	0.25	0.83 K/W	K/W
R_{thCK}				

TO-247 AD (IXGH) Outline



Dim.	Millimeter Min.	Millimeter Max.	Inches Min.	Inches Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	1.5	2.49	0.087	0.102

TO-268AA (D³ PAK)

Dim.	Millimeter Min.	Millimeter Max.	Inches Min.	Inches Max.
A	4.9	5.1	.193	.201
A ₁	2.7	2.9	.106	.114
A ₂	.02	.25	.001	.010
b	1.15	1.45	.045	.057
b ₂	1.9	2.1	.75	.83
C	.4	.65	.016	.026
D	13.80	14.00	.543	.551
E	15.85	16.05	.624	.632
E ₁	13.3	13.6	.524	.535
e	5.45 BSC		.215 BSC	
H	18.70	19.10	.736	.752
L	2.40	2.70	.094	.106
L ₁	1.20	1.40	.047	.055
L ₂	1.00	1.15	.039	.045
L ₃	0.25 BSC		.010 BSC	
L ₄	3.80	4.10	.150	.161

Min. Recommended Footprint

